CCD PHOTOMETRY AND SPECTROSCOPY OF ASTEROID 1998 SF36

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Asteroid 1998 SF36 is the target of the Japanese/NASA MUSES-C sample return mission, set for launch in 2002. The preparation and planning for this mission requires prior knowledge of the physical parameters of the intended target. Such knowledge is valuable in planning the mission trajectory and science scenarios. Unfortunately, information regarding the bulk physical properties and taxonomic classification of this near-Earth asteroid is limited. We present results of a ground-based observational study of 1998 SF36, consisting of multi-filter CCD photometry and low resolution CCD spectroscopy, from which the asteroid's rotation period, axial ratios, broadband colors, and taxonomic classification are derived. CCD photometry was obtained during February and March 2001 using the 61" Kuiper telescope (Steward Observatory, Arizona), and the 24" telescope at the Table Mountain Observatory (California). Complimentary, low resolution, spectroscopic observations between 0.35 and 1.0 microns were obtained with the 5 m Hale telescope at Palomar Mountain on March 17 and 18, 2001. The spectra indicate that this object is most likely of QRS-type. Analysis of the BVRI filter photometric data is ongoing. However, preliminary analysis reveals a rotation period of approximately 12 hours, with an associated peak-to-peak amplitude of ~1 magnitude, suggesting a highly elongated object. This work was supported in part by the NASA Planetary Astronomy Program.